SUMMARY OF THE
U.S. NUCLEAR REGULATORY COMMISSION / U.S. DEPARTMENT OF ENERGY
QUARTERLY MANAGEMENT MEETING
LAS VEGAS, NEVADA
FEBRUARY 17, 2005

Introduction:

The U.S. Nuclear Regulatory Commission (NRC) and U.S. Department of Energy (DOE) held a public quarterly management meeting on February 17, 2005. The purpose of this meeting was to discuss the progress of the Yucca Mountain Project (Project) regarding the proposed geologic repository at Yucca Mountain, Nevada. The meeting was hosted at DOE's Office of Repository Development (ORD) in Las Vegas, Nevada, with video and audio connections to the NRC in Rockville, Maryland, and the Center for Nuclear Waste Regulatory Analyses (CNWRA) in San Antonio, Texas. Other participants included the NRC Region IV, Nuclear Energy Institute, the Electric Power Research Institute (EPRI), the Nuclear Waste Technical Review Board, the Naval Nuclear Propulsion Program, the State of Nevada, the Nevada Nuclear Waste Task Force, Eureka County, Clark County, the press, and members of the public.

Opening Remarks:

Ms. April Gil, Office of License Application and Strategy, DOE, started the meeting by welcoming the NRC management and staff, members of the public, and all other stakeholders.

Mr. Thomas Matula, NRC, provided a brief clarification that this was a Category 1 meeting, open to public comment and feedback during the meeting and through the feedback forms provided. Mr. Jack Strosnider, Director, Office of Nuclear Material Safety and Safeguards, NRC, recognized the resignation of Dr. Margaret Chu, Director of DOE's Office of Civilian Radioactive Waste Management, and acknowledged her achievements in moving the Project forward. Mr. Strosnider then welcomed DOE managers, members of the public, and all other stakeholders.

NRC Program Update:

Mr. C. William Reamer, Director, Division of High-Level Waste Repository Safety, NRC, presented the NRC program update. Mr. Reamer began by discussing the need for the NRC to understand DOE's path forward toward submitting a License Application (LA) and the uncertainties that may impact a submittal schedule. Mr. Reamer discussed the Court of Appeals rejection of the U.S. Environmental Protection Agency (EPA) 10,000-year standard and mentioned that the NRC is very interested in understanding EPA's process for revising the standard because NRC will need to amend part 63 to be consistent with any EPA revisions to the Yucca Mountain Standard. Regarding key technical issue (KTI) agreement items status, Mr. Reamer noted that NRC had completed their review of 221 of the 293 agreements as of February 15, 2005, and that completion of the KTI agreements increases the likelihood that the LA can be docketed. He added that the NRC will increase attention toward technical design issues and implementation of the DOE Quality Assurance (QA) program.

Mr. Reamer also addressed the need to recertify the Licensing Support Network (LSN) and reminded participants that the LA cannot be docketed until 6 months after recertification. As stated in the letter dated January 18, 2005, the NRC has reiterated the need to conduct sustained input of documents to the LSN and expressed some concern that DOE has been inactive over the past three months in adding documents to the LSN. Mr. Reamer then mentioned that a full and thorough public hearing process will be conducted in accordance with the regulations and acknowledged public access to the LSN documents to facilitate discovery. Also, the NRC staff is issuing a Regulatory Issue Summary (RIS) on guidance for establishing and maintaining a Safety Conscious Work Environment (SCWE).

DOE Program Update

Dr. Margaret Chu, Director, Office of Civilian Radioactive Waste Management, DOE, began her remarks by recognizing the new DOE Secretary of Energy, Dr. Samuel Bodman. Dr. Chu recognized Dr. Bodman's qualifications and his active interest in the success of the Project. Dr. Chu stated that Dr. Bodman's strong technical background is a helpful addition to the position.

Dr. Chu stated that a new proposed EPA standard, which is under the direct jurisdiction of the EPA, is anticipated to be available in the early summer timeframe, and the revised standard may address timeframes well beyond 10,000-years. Regarding the LSN recertification effort, document reviews are ongoing and the review process will make fully available many documents that otherwise would not have been included due to issues with privileged documents. Dr. Chu stated that the review is time consuming, but DOE wants to make sure it is done correctly in support of LSN recertification by mid-year, 2005.

Dr. Chu then discussed the $651 million budget for fiscal year (FY) 2006 noting that it is not tied to a change in the method of accessing the Nuclear Waste Fund. The FY 2006 budget was designed to support the LA submittal and response to expected NRC questions, further work in the design of surface and subsurface facilities, and for cask prototypes. She said that $85 million of that budget is allocated to the transportation rail corridor and infrastructure, rail-car prototypes, and other mostly procurement related costs. The budget also provides for system enhancement to ensure institutional readiness across the Project.

Regarding her resignation, Dr. Chu stated that it has been a privilege to lead a great organization during an exciting time period and that the recent work has prepared the program for success. Dr. Chu acknowledged the role of the NRC and their professionalism, technical competence, and primary concern for the health and safety of the public. The Project has demonstrated that it could transition from being a science-based Project to a licensee and that the organization has been developing the appropriate nuclear culture.

DOE Yucca Mountain Project Update:

Mr. John Arthur, Deputy Director, ORD, DOE, gave an update on the Project. Mr. Arthur summarized DOE's continuing improvements and accomplishments since the November 22,

2004, Management Meeting and discussed the status of DOE preparations to submit the LA and complete the supporting documentation. Mr. Arthur then introduced DOE's Concerns Program Manager, Ms. Julie Goeckner, and new Bechtel SAIC Company, LLC (BSC) managers before providing the overall Project status.

License Application Schedule Status:

Mr. Arthur noted that DOE has made significant progress in completing and documenting the technical basis for submittal of the LA. The science and design work completed in support of the LA is technically sound and adequate for its intended purpose, and meets QA requirements. This work supports robust safety analyses for the preclosure (operational) period through 10,000 years after permanent closure.

Mr. Arthur said that based on a management review conducted in September 2004, DOE determined that some additional work is needed, largely to assure the transparency, traceability and the self-sufficiency of the LA, and to verify consistency between the LA and underlying technical documents that were in revision during development of the draft LA (principally Analysis and Modeling Reports (AMRs), System Description Documents (SDDs), Facility Description Documents (FDDs), and the Preclosure Safety Analysis (PCSA)).

Mr. Arthur noted last summer's Court of Appeals decision to vacate the EPA standard to the extent that it does not incorporate a post-10,000-year compliance period. This has contributed to the schedule setback for the repository program.

Mr. Arthur added that EPA has indicated that it intends to prepare a regulation consistent with the National Academy of Sciences recommendations with a draft expected this summer. Mr. Arthur commented that it is important to remember that, whether the regulatory period is 10,000 years or much longer, the repository site is the same. The scientific work that describes Yucca Mountain and analyzes the performance of natural and engineered barriers is still very valid.

Mr. Arthur stated that at this time, DOE does not currently foresee significant changes to the analytical basis for evaluating safety in the 10,000 years after closure, nor should analyses of longer-term performance necessitate significant changes to DOE's scientific or design bases. At the same time, DOE is taking necessary parallel actions to be ready to respond to EPA's draft standard.

Mr. Arthur then summarized some of the LA work underway. Regarding postclosure enhancements, DOE identified selected areas of the postclosure safety analysis where DOE will develop more realistic versus bounding inputs and a few areas where technical updates were warranted. These include: (1) evaluating the basis for, and if warranted, revising the treatment of conservatism in waste package seismic design, dissolved neptunium concentrations, and modeling of waste package damage during seismic events; (2) revising the Total System Performance Assessment for License Application (TSPA-LA) model and the

appropriate AMRs; and (3) evaluating the adoption of the ICRP-72 [International Committee on Radiation Protection] dose conversion factors in the TSPA-LA and PCSA. Mr. Arthur added that if ICRP-72 were adopted, the conversion factors would need to be included in both the TSPA-LA and the PCSA.

With respect to preclosure enhancements, Mr. Arthur stated that DOE has developed an approach to enhance the PCSA supported by specific design activities. Enhancements to the PCSA include: (1) further development of fire protection designs; (2) expanding the discussion of site-specific aging casks and addressing operational considerations associated with expected doses adjacent to the casks; (3) including a more complete thermal management strategy; (4) developing automated event trees suitable for performing sensitivity and uncertainty analyses; (5) including off-normal event sequences and incorporating hazards posed by off-normal operations (e.g., loss of shielding) as potential event initiators; and (6) using bounding source terms for Category 1 event sequences to align with facility process flow models and Concept of Operations documents.

Status of Supporting Documents:

In providing the status of supporting documentation, Mr. Arthur stated that much of what remains to be done is to ensure the readability so that the NRC staff and other reviewers will be able to locate and evaluate the information supporting the LA.

Mr. Arthur provided a slide depicting the types of documents, their numbers, and their hierarchy. Mr. Arthur stated that for postclosure documentation, the Postclosure Safety Analysis relies primarily on AMRs, and that some of these, including the TSPA AMR, will undergo revisions and technical updates. Mr. Arthur remarked that the results of activities over the past year, including the KTI agreement process, the Regulatory Integration Team (RIT) model validation reviews, QA audits and surveillances, integration with the LA reviews, and feedback from the NRC have increased DOE's confidence in the quality and robustness of this work.

Regarding supporting data qualification, software qualification, and model validation, Mr. Arthur noted that a number of QA reviews show positive trends and improvements, and that quality has improved significantly over the last two years. Mr. Arthur added that the Project is very close to closing a major Condition Report (CR), CR-099, which has been open for a few years, and provided the plans for closure of CR-099. For CR-099, DOE's Office of Quality Assurance (OQA) has performed 100-percent verification on model validation in the AMRs and is nearing completion of the final verification assessment and resulting documentation. Mr. Arthur noted that one of the results of the verification effort has been a recommendation to include an OQA and ORD reviewer directly on any subsequent model validation review teams, and that this step will be added to the appropriate administrative procedure.

Mr. Arthur stated that for preclosure safety and engineering documentation, the primary references for the Design and Engineering work are approximately 26 SDDs and 8 FDDs. He

added that many of these are still subject to revision as enhancements to the design and PCSA are completed over the next four (4) months. Specifically, the PCSA is currently supported by 22 calculations that describe the hazards identification, categorization of event sequences, dose consequence analyses, and nuclear safety design bases. Eighteen of these 22 documents are expected to be direct references in the LA.

With respect to establishing confidence in design and preclosure safety documentation, Mr. Arthur discussed the root cause analysis for CR-3235, which focused on traceability, transparency, technical quality, and consistency of technical products supporting the Safety Analysis Report (SAR). Technical consistency issues to date have not challenged the technical adequacy of design documents and significant progress in improving the transparency of these documents has been made.

LA Submittal:

In summarizing efforts related to the submitting the LA, Mr. Arthur stated that DOE expects to complete the LA in 2005. In addition to the General Information and SAR required at 10 CFR 63.21, DOE is preparing to include attachments to the LA submittal, as required by the Nuclear Waste Policy Act and the NRC. These are: the Final Environmental Impact Statement (FEIS) with the Commission's comments on the FEIS that were sent from the Chairman to the Secretary on February 4, 2002; and the Quality Assurance Requirements and Description (QARD) document, Revision 17, which has already been transmitted to the NRC for their review and acceptance. He noted that an NRC/DOE Technical Exchange was held on February 10, 2005, to discuss the NRC questions on QARD, Revision 17. The Navy's classified Technical Support Document will be transmitted under separate cover, consistent with the Department of Defense and the NRC provisions for the use of this information.

Other Project Events and Progress:

Licensing Support Network Status:

Mr. Arthur said that over the past two months the project has re-baselined the technical requirements and schedule for certification of the LSN. A new project manager, Mr. Kerry Grooms, DOE, has been assigned to the LSN project. In addition, DOE has established an LSN project management team at the LSN support contractor's offices in Washington, D.C., to allow closer monitoring and oversight of the preparations for LSN certification.

As described in DOE's January 11, 2005, letter to the NRC, Mr. Arthur noted that the current estimate for the total DOE LSN collection at the time of certification will be between approximately 3 million and 4 million documents, containing between approximately 26 million and 34 million pages. He clarified that as part of the ongoing review, the total number of documents will not be known until various duplicates are eliminated.

Reviews have been performed to identify the necessary corrective actions for the certification that was vacated. These corrective actions have been implemented. Some examples include: (1) quality verification steps to ensure the process steps necessary to produce a quality collection have been implemented; (2) improved headers on documents; and (3) continued processing of inactive electronic mail.

Mr. Arthur stated that DOE understands the importance of LSN recertification and projected a mid-summer time frame for certification. The DOE will continue to refine the schedule and keep the NRC apprised of any significant changes.

KTI Status:

Mr. Arthur noted that the technical progress on the Project is perhaps best measured by advances by both DOE and the NRC in the KTI agreements process, which has served an important role in facilitating resolution of many of the NRC staff's questions and concerns. He stated that on August 31, 2004, DOE submitted the remaining 17 of 293 KTI agreement item responses to the NRC.

The NRC has evaluated and categorized as complete 205 of the 293 of the KTI agreement responses as of February 15, 2005. All of the high-risk agreements have been reviewed by NRC. DOE expects that any additional questions or concerns of the NRC on KTI agreement topics will be addressed within the context of the licensing process. Mr. Arthur said he appreciates the NRC's feedback on the KTI agreements that have been reviewed, in particular, the high risk agreements.

Waste Package Prototype Status:

Mr. Arthur reported that DOE has commissioned a prototype waste package that is scheduled for delivery in September 2005. As is typical with prototype "first-of-a-kind" designs, there is contingency on delivery. DOE plans to deliver it to Idaho where the welding process will be prototyped.

Underground Access Status:

Mr. Arthur stated that DOE completed major maintenance of the underground electrical system on December 9, 2004. This entailed conducting preventive maintenance on 13 Mine Power Centers and the Subsurface Power Center.

Mr. Arthur provided a description of the substantive work underway and added that DOE has established routine access dates with minimal access requirements. Effective February 8, 2005, and on the second Thursday of each following month, deep access for visitors is available in the tunnel including access to the Cross Drift, Alcove 5, and the entirety of the main tunnel.

Performance Indicator (PI) Program Status:

Mr. Arthur briefly discussed previous PI panels from August 2003, January 2004, April 2004, and July 2004 to point out that the Project has demonstrated significant improvements. The DOE is in the process of revising the PI Panel to reflect the transition from a science Project to one of licensing and engineering.

Mr. Arthur said that the initial panel of the performance metric system from August of 2003 was a formative time with some work going to establish the panel format. Many of the metrics have changed from red to yellow/green by the end of 2004. Significant progress in quality has been made over the past year with no major program or implementation issues identified while successfully closing prior issues (software, data, models, etc.). However, the TSPA and Model Validation PIs remained red due to CR-099 still being open.

The PI Panel, based on the results of self-assessments, is being changed to track at the Project level using typical construction methods (cost, schedule, percent complete, etc.) and a set of more focused, process-based alarm indicators. These changes were developed in January 2005 and are undergoing review this month. The revised PIs will be populated with data in March and will be presented at the April Monthly Operations Review meeting. Mr. Arthur offered to provide a briefing to the NRC on the PI Panel revisions and would appreciate any feedback the NRC may offer.

Corrective Action Program (CAP) Status:

Mr. Arthur stated that there have been significant improvements in the CAP. The DOE had the Institute of Nuclear Power Operations present a human performance workshop to senior managers and to train internal Project trainers. The Project error rates trend very closely to commercial nuclear power industry numbers.

Mr. Arthur introduced Ms. Peggy McCullough, Deputy General Manager, BSC, to provide more details in this area. Ms. McCullough addressed the CAP, CR-3235 and restructuring of the BSC workforce. Improvements were noted in CAP software enhancements, management enhancements, increased accountability, increased self-identification of issues, rewards for performance, and completion times. Trends continue to be positive in the PI metrics. The line organization has self-identified 89 percent of the CRs in December 2004 and 81 percent in January 2005. The average was 76 percent in the last six months. Screening of CRs has been performed in less than four days for the last nine months. Eighty-three percent of corrective action plans met their goals. The average age of Conditions Adverse to Quality (CAQs) was 74 days in January 2005.

Ms. McCullough discussed that the Project anticipated that CRs generated by the RIT would have an impact on the average age of CRs. Since removal of the QA organizations from in-line responsibility for Level-C CRs as the result of QARD, Revision 15, the line organizations have assumed responsibility for these CRs and have demonstrated excellent performance. To ensure further improvement, the Project will be increasing the number of effectiveness reviews.

Regarding CR-3235 on transparency and traceability issues, Ms. McCullough said there were problems with the first root cause that was prepared due to a number of contributing factors. These included: an arbitrary root cause due date regardless of problem scope; presumptions on the causes and corrective actions, over-reliance on opinions and judgment; and an interview question structure that solicited opinions rather than facts. The important lessons learned will be incorporated into the conduct of future root cause analyses.

Ms. McCullough then addressed the need for restructuring the BSC workforce due to budgetary constraints, and outlined the process to achieve the reduction in force while maintaining the proper skill mix necessary for the tasks before the Project. She added that the Employee Self-Selection Exit process is proceeding well and that the Fact-based, Objective, Consistent (for similar situations), Unbiased, and Safety-Conscious-Work Environment-directed (FOCUS) Committee is in place to ensure that any forced staff reductions are conducted in a fair and appropriate manner.

Safety Conscious Work Environment Status:

Mr. Arthur addressed the results of a Project-wide independent SCWE survey that was conducted in September-October 2004 by International Survey Research LLC (ISR) on behalf of the Project to assess changes in the workplace culture and help identify opportunities for improvement. Mr. Arthur noted that the results in all categories were at or above norms where comparisons can be drawn. Mr. Arthur provided observations that due to the timing of the survey, a number of factors may have influenced the results.

Some of the highlights from the survey results are: (1) particular strength in openness and communication; (2) gains in willingness to use and confidence in the CAP and confidence that employee concerns program effectively resolves concerns; and (3) lingering concerns over rapidly changing priorities, timely decision making, and schedule. Other comparisons from the SCWE survey conducted last year included: (1) two management categories showed statistically significant declines; and (2) SCWE Culture is still highest rated overall category. Caution must be used in this comparison as only four of ten 2004 questions related to SCWE were used in 2003; there were no other statistically significant changes in management categories.

Mr. Arthur then covered the four (4) Pillars of a SCWE program and made the following observations:

Pillar 1 -- Management Support: The survey showed a high level of employee recognition of the responsibility to raise safety concerns and willingness to do so (95 percent) and that management is continuing opportunity to better communicate commitment to quality over schedule.

Pillar 2 -- Effective Normal Problem Resolution Processes: The survey showed significant improvement in employee confidence that CAP is effectively used to achieve timely resolution of identified problems. Mr. Arthur added that although the Pillar 2 indicators showed improvement, continued attention and improvement is still clearly warranted.

Pillar 3 -- Effective Alternate Problem Resolution Processes: Some improvements were shown in employee confidence that employee concerns are thoroughly investigated and appropriately resolved. Mr. Arthur added that there is continuing opportunity to better communicate the confidentiality and value added by the employee concerns programs at DOE and BSC.

Pillar 4 -- Effective Methods to Detect and Prevent Retaliation: There was high employee recognition of management expectations for SCWE (97 percent favorable response for SCWE Policy awareness). Managers are now conducting focus groups to better understand survey results, including a decline in this area.

Mr. Arthur then indicated that in response to the SCWE survey results further analysis is being conducted to identify corrective actions/lessons learned for this year's survey. He stated that DOE will develop and communicate Project-wide action plans in the March-April timeframe and mentioned that ISR could be made available to brief the NRC.

The Project recognizes the need to address the NRC staff information needs and will support increased technical interactions and availability of design documentation. Mr. Arthur proposed topics for interactions with the NRC staff in the area of preclosure and design, including the aging facility, aircraft hazards, Important to Safety (ITS) issues, specific areas of design, and the PCSA.

Mr. Arthur summarized his presentation with the following statements:

The DOE has revised its LA submittal schedule and currently plans to complete the LA by the end of the calendar year. A final decision for submittal will be after EPA's draft standard is promulgated this summer; DOE believes that, based on the information that is reasonably available, there will be adequate technical information for the NRC to begin their detailed technical review of the LA; DOE's principal challenge is to verify the traceability and transparency of the LA, complete limited additional technical enhancements, and ensure document-to-document consistency between the LA and the supporting technical documents; The Project has made significant improvements in the CAP and SCWE areas and will continue along that path; No major program implementation issues have been identified and DOE is successfully closing prior issues (software, data, models); Significant quality progress has been made over the past year; There is a high rate of critical self-identification of problems but few with impact on technical adequacy.

Mr. Reamer noted uncertainties that may interfere with DOE's target to submit the LA by the end of this year. Mr. Reamer discussed the timetable for LSN recertification and the LA submittal and expressed the importance of a firm schedule in order for the NRC to allocate the appropriate resources for review. Increased communications and information exchanges are needed to keep the NRC staff abreast of technical issue developments and scheduling matters, and that a schedule for needed interactions should be established. Mr. Arthur agreed.

Mr. Wes Patrick, CNWRA, asked what information will be on the licensing docket for the NRC's review. Mr. Joe Ziegler, Director, Office of License Application and Strategy, DOE, noted that although the formal licensing docket does not yet exist, most of the relevant documents for licensing proceedings are already in the public domain and that eventually all relevant documents will be made available by the time of LA submittal via the LSN. Further, he added that any other documents would be available for the NRC's inspection or submittal upon request. Mr. Patrick was satisfied with that response.

License Application Update

Mr. Ziegler reported on the plans for LA submittal, the status of the KTI agreements, planning for NRC/DOE interactions, and recent accomplishments.

Regarding LA plans for postclosure safety analysis and integration, Mr. Ziegler said that input documents to the postclosure safety and analysis were reviewed and over 3,000 action items were identified. Eighty-nine documents were designated for update using specific evaluation checklists. Updates were completed in four steps, including drafting, checking, review, and approval, in November 2004, with the exception of the TSPA AMR. With the delay of the LA, Mr. Ziegler stated that several other refinements to a few AMRs were now underway and that the TSPA AMR would be last to be completed just prior to LA submittal.

As part of actions to close CR-099, 48 model reports were reviewed by OQA to evaluate the adequacy of documentation of model validation. The results were very positive, although several minor deficiencies were identified. The corrective actions have been agreed to and CR-099 is expected to close soon.

Mr. Ziegler briefly discussed a focused PCSA/Design and Integration effort to ensure the preclosure safety basis is well defined, understandable, complete, and reflected in an integrated manner in the LA support documentation. The primary purpose of this effort is to ensure consistency between the LA and supporting preclosure documentation. Mr. Ziegler said that the basis documents will be issued before submittal of the LA. This integration effort will improve transparency and traceability in the LA documentation.

There is an ongoing effort to review NRC's recently issued revision to the Integrated Issue Resolution Status Report. Because the data cut-off for this document was March 2004, Mr. Ziegler said the review includes an evaluation of issue resolution documentation that has been provided to the NRC since March 2004, to identify any potential pre-submittal issues.

Another round of reviews of draft LA sections was initiated in January 2005, and includes checking support documents and references to ensure an adequate documented basis for assertions. There are also plans for additional senior management and senior external reviews, using experts with DOE, the NRC and industry experience.

With respect to KTIs, Mr. Ziegler reiterated that 205 of 293 agreements are considered complete by the NRC, as of February 15, 2005. Mr. Ziegler added that there is a continuing dialogue with the NRC technical staff and the CNWRA staff to assist in completing the remaining reviews. Mr. Ziegler then summarized the status of completed KTI agreements in terms of the NRC staff's low, medium, and high-risk categories.

Mr. Ziegler then discussed interaction planning for 2005. The DOE is in discussions with the NRC staff to identify the need for and timing of upcoming interactions, notably in the area of preclosure design. The DOE and the NRC held a Technical Exchange on the QARD, Revision 17, on February 10, 2005.

Finally, Mr. Ziegler noted that the NRC On-Site Representatives offices have been relocated to an area in the Hillshire building with enhanced direct access, without going through DOE offices.

Mr. Fred Brown, NRC, asked about the status of the five or six CRs on AMRs that had come through the RIT process. Mr. Ziegler replied that the additional conditions identified by staff from the OQA and the Office of License Application and Strategy were minor compared to what was seen in the past. Mr. Ziegler noted that he did not want to minimize or down play the importance of these conditions, but there has been a major improvement in the process of developing AMRs over the last year.

Preclosure and Repository Design Overview Status:

Mr. Richard Craun, Office of Project Management and Engineering, DOE, provided an overview of preclosure design activities, including discussion of design status, design products alignment, and future activities.

With respect to the design status, Mr. Craun stated that the Project is addressing the NRC's October 8, 2004, letter identifying design information needs. The DOE/BSC reviews during the summer and fall of 2004 identified potential surface facility enhancements, based upon the design at that time. Using this information, DOE has defined the work scope for 11 design enhancements and developed schedules for those enhancements. Mr. Craun said that most design activities will be completed in May 2005, on schedule to support DOE review during the summer.

Mr. Craun then discussed the bases and objectives for design enhancements. These included continuing development of the design for the operations approach (e.g., fuel in air) and how they may affect operations and future Technical Specifications, increasing conservatism in

The PCSA (e.g., use of bounding versus mean values in Category 1 event sequence consequence analyses), enhancing the design solution (e.g., the use of fire suppression system in addition to combustible inventory control), and improving the documentation of how the design satisfies the design bases (e.g., reliability values).

Mr. Craun discussed examples of enhancements and design development areas. These example enhancement areas included: design details for the site specific aging system; electrical systems; design of non-standard equipment to confirm PCSA reliability analyses; evaluating potential effects of Non-ITS Structures, Systems, and Components (SSCs) on Important to Waste Isolation SSCs; aircraft hazard analysis; seismic design methodology and preliminary facility seismic analysis; thermal management strategy; automated event trees analysis; and including direct radiation sources and low-level waste sources in preclosure safety analyses.

Mr. Strosnider asked Mr. Craun if DOE expects all of the information presented on a slide depicting the evolution of the equipment design development from the safety basis through the equipment testing will be available at the time of LA submittal. Mr. Craun responded that the

information on the Standard and Non-Standard equipment will be available for the LA submittal and clarified that the level of detail will support the LA but will not be sufficient for procurement or fabrication of the equipment. Mr. Strosnider acknowledged the clarification.

Mr. Craun added that seismic margin analyses using high confidence, low probability of failure (HCLPF) methods of analysis will be used to demonstrate adequate seismic capacity margins exist for ITS SSCs and stated that these margins will be used as inputs to the PCSA where compliance demonstration to 10 CFR 63 performance objectives for seismically initiated event sequences are prepared.

Mr. Craun then addressed transparency issues with the design products stating that the issues related to the clarity of the bases for assumptions and noted that the technical adequacy was not challenged. He added that improved documentation for the selecting design methodologies and analysis inputs is needed and that DOE is “raising the bar” for supporting information and the use of references to enhance transparency and traceability, noting that DOE will be performing self-assessments to ensure that transparency and traceability are consistently applied.

In conclusion, Mr. Craun noted that the Project has made significant technical progress over the past year and is focused on completing the LA and providing support to address the NRC information needs. There are some specific areas that are ready for technical interactions with the NRC staff. Examples include material handling, building designs, and heating, ventilation, and air conditioning systems.

Mr. Elmo Collins, NRC, asked Mr. Craun to elaborate on how 10 CFR Part 63 drove design and PCSA together. Mr. Craun responded that PCSA made assumptions and assertions that directed the design and design requirements. In cases where design could not accommodate the PCSA analysis, iterations back through the PCSA were necessary. This also resulted in additional SSCs being classified as ITS. Mr. Ziegler also commented that there will be ITS SSCs due to 10 CFR Part 20 in addition to those due to 10 CFR Part 63.

Mr. Fred Brown asked who would be performing external reviews of the enhanced design work. Mr. Craun said that the Project may use the team that looked at the extent of condition for CR- 3235, may bring in an external audit or surveillance team, or may conduct self-assessments. Mr. Ziegler reminded the participants that the QA process also still applies and requires audits and surveillances of these efforts.

Mr. Tae Ahn, NRC, asked if Mr. Craun considered the compatibility of designs for: (1) transportation/storage; (2) pre-closure operation; and (3) post-closure disposal. He also asked Mr. Craun about the results of analyses information presented and whether the cladding temperature limit covers a range of the burnup of spent nuclear fuel (SNF). Mr. Matula suggested that this level of questioning was too detailed for the Management Meeting forum and should be addressed through a future technical exchange.

Ms. Marissa Bailey, NRC, asked Mr. Craun to clarify how the number of spent fuel handling lifts and the use of non-standard equipment will be addressed in the LA.

Mr. Craun responded that the PCSA bounds both bare spent fuel and canisters received and the total number of lifts.

Mr. Budhi Sagar, CNWRA, asked whether HCLPF methods of analysis have been used in other NRC licensing activities. Mr. Craun responded that it is a standard methodology and has been used by other NRC licensees. Mr. Strosnider confirmed that HCLPF methods have been used extensively in risk analysis.

Mr. John Kessler, EPRI, asked if the incorporated approach was risk based. Mr. Ziegler responded that the work DOE is doing is risk based and appropriate for the application.

Mr. Fred Brown asked if there will be proposed license specifications for the assumptions used in the PCSA. Mr. Ziegler responded that during the development of technical specifications, these issues will be considered, adding that Limiting Conditions of Operations and other controls (e.g., License Conditions) will likely be incorporated.

Quality Assurance Program Update:

Mr. Dennis Brown, Director, OQA, DOE, provided an update on QA activities. Mr. D. Brown's presentation topics included the status of the QARD, CAP oversight, status of CR-099, audits and surveillances, and the Quality Management Directive.

Regarding the QARD, Mr. D. Brown summarized topics discussed during the February 10, 2005, Technical Exchange with the NRC on QARD Revision 17. Plans are to respond to the NRC letter of December 22, 2004, requesting additional information on the QARD revision, by late February 2005.

Mr. D. Brown also discussed the planned BSC Quality Management Directive (QMD) currently under development. Requirements of the QARD, Revision 17, and DOE Order 414.1B, *Quality Assurance*, will be integrated in the QMD. It is anticipated that the QMD will be transmitted to DOE in mid-March 2005. The QMD and QARD, Revision 17, will be effective concurrently.

Mr. Matula asked, considering QARD, Revision 17, and the QMD, what measures are being considered on human performance. It was agreed that DOE would follow up at a later date on this question.

In the CAP oversight area, Mr. D. Brown noted that both the ORD and BSC QA organizations continue to review 100 percent of their Level-C CRs. In seven BSC surveillances on effectiveness of CR actions, no CAQs were found. The January 2005, OQA audit of the CAP noted several areas of improvement.

The status of CR-099 verification activities was discussed briefly. A verification team of qualified personnel conducted an extensive review of model reports. One hundred percent of the model reports were reviewed. Two years ago, 87 percent of the model reports failed to meet review criteria with 34 percent found to be technically suspect. The current review shows that several procedure compliance issues remain, but all of the model reports are now technically valid. The CR-099 is nearing closure.

Recently completed and planned OQA and BSC audits and surveillances were discussed. Mr. Matula, Mr. F. Brown, and Mr. Patrick questioned and commented on what they saw as a possible overemphasis on compliance-based audits (as opposed to performance-based audits) and asked if OQA had an overall strategy for conducting its oversight activities. Although acknowledging the importance of compliance, the particular comments focused on whether over-reliance on compliance-based audits could miss “big picture” areas. It was also noted that many of the audits and surveillances were in the science and engineering area, which appear to offer good opportunities for performance-based audits. Mr. D. Brown responded that the particular nature of the areas that were audited were more amenable to compliance-based audits and that regulatory requirements dictate some emphasis on compliance-based audits. Some performance-based audits have been conducted and more will be conducted as work progresses to a point where performance-based audits will be meaningful.

Transportation Cask Systems Acquisition

Mr. Gary Lanthrum, Director, Office of National Transportation (ONT), DOE, summarized the DOE approach to acquiring cask systems, and efforts to ensure compatibility of casks with repository surface facilities and with shipping sites.

Mr. Lanthrum said that the ONT is focused on using existing cask designs and Certificates of Compliance (CoCs) when possible. The ONT also has a preference for cask systems that provide maximum flexibility and that final decisions have not been made on the suite of casks required for both transportation and an aging facility.

Mr. Lanthrum said that ONT has let the NRC Spent Fuel Project Office (SFPO) know that existing hardware will meet many of our needs, but some CoC modifications and new cask designs will be needed.

Mr. Lanthrum noted that existing CoCs combined with physical constraints at shipping sites limits current transportation coverage to less than 30 percent of the commercial SNF inventory. Both modifications to CoCs for existing casks and new cask designs will be required to transport all of the commercial SNF inventory.

Mr. Lanthrum concluded that casks exist today that are technically capable of transporting DOE waste material. In general, the thermal, structural, and shielding requirements for commercial SNF bound those of the DOE material. New internal basket designs could be developed to accommodate DOE’s canisters and this would require CoC modifications for the new baskets.

With respect to the NRC certification needs, Mr. Lanthrum noted that continued integration planning efforts will be undertaken to minimize the number of new casks for NRC review and certification. In FY 2006, ONT will have contracts for conceptual designs to address the gaps in current cask capability.

In FY 2007, it is expected that vendor applications will be submitted to the NRC for CoC modifications and new CoCs. Vendors may choose to pursue additional content coverage for their existing designs through CoC modifications before DOE procurements are awarded. The ONT will keep the NRC's SFPO informed of DOE's needs for expanded CoCs and new hardware designs.

NRC/DOE Closing Comments:

Mr. Strosnider thanked everyone and provided a quick high level summary of items of interest to the NRC:

LA Content – DOE needs to make sure the correct level of detail is included in the LA.

KTIs – Revisions in documents supporting the areas of preclosure, postclosure, and LA integration make it especially important that DOE keeps NRC informed and aware of any changes to information that was previously submitted by DOE due to the new work.

The SCWE RIS is to be issued shortly and the NRC would like to meet and discuss its contents. Over the next few weeks, NRC and DOE agree to work on a schedule for proposed interactions, including the following: Performance Indicators Development of the surface facilities. Due to the number of scheduling uncertainties, the NRC wants to be kept abreast of any schedule changes so they can adjust their resources appropriately.

The NRC wants to make sure they have a clear understanding of DOE's approach to performance-based and compliance-based audits and surveillances. The NRC will continue close oversight of QA activities. The NRC is interested in how DOE is prepared to transition to a post-LA submittal environment and responding to NRC Requests for Additional Information.

The NRC wants to be informed of progress and changes in the area of transportation activities (e.g., cask certifications).

Mr. Arthur thanked the NRC and others in attendance for their participation. Mr. Arthur acknowledged the volume of items discussed at the meeting and the scope of work that it entails. He noted that the management reviews of the LA would continue into late August or September 2005, but does not anticipate large changes to the LA. Mr. Arthur stated that he is proud of the work that has been completed; he understands that the burden is on the Project to perform; and management must ensure that NRC expectations are not missed. Mr. Arthur added that management is looking to further optimize facility operations and make ready the LSN for recertification as soon as possible.

Action Item Status:

The status of open action items was discussed. Two new action items and an expansion of an existing item, MM 0411-02, were established. The DOE and the NRC agreed to close two previous action items, MM 0411-01 and MM 0411-05. The status of the action items is summarized in the attached table.

Public Comments:

Mr. Atef Elzeftawy, representing the Paiute Indian Nation, observed that the Project had made real progress under the leadership of DOE's Dr. Chu and Mr. Arthur. He took the opportunity to thank them; especially in note of Dr. Chu's planned departure. He also thanked Mssrs. Martin Virgilio and Bill Reamer of the NRC.

Mr. Charlie Fitzpatrick, Egan & Associates for the State of Nevada, asked whether the State of Nevada could be provided with the draft LA to expedite their review. Mr. Arthur indicated that DOE had received a letter from the State with that request and the response was under consideration.

Mr. Fitzpatrick also asked about non-public meetings between DOE and EPA and what information was being exchanged. Dr. Chu responded that the meetings primarily focused on the unique technical nature of the TSPA model and how probabilistic considerations were done in the model.

Ms. Judy Treichel, Nevada Nuclear Waste Task Force, commented on DOE's meeting with EPA and NRC's meeting with EPA without public participation and indicated that it was a disturbing situation. Mr. Reamer indicated that the public will have an opportunity to comment on any revisions of the EPA standard during the rulemaking process. Ms. Treichel further commented that she believed public meetings should be held early and not merely after EPA and the NRC have essentially finalized the proposed rule because it is the public that is being protected by the rules. Mr. Reamer responded that during earlier rulemakings there were a number of changes to the rules due to public comments at that time. There is no reason to believe that the process will not be similarly effective for future anticipated rulemakings.

Conclusion

The meeting was adjourned following the opportunity for public comments.

/RA/ Date: 03/17/05	**/RA/** Date: 03/14/05
C. William Reamer, Director	Joseph D. Ziegler, Director
Div. of High Level Waste Repository Safety	Office of License Application and Strategy
Office of Nuclear Material Safety and Safeguards	Office of Repository Development.
U.S. Nuclear Regulatory Commission	U.S. Department of Energy